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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|----------------------------|------------------------|
| 10/536,712 | 12/14/2005 | Francis Delaporte | 026032-4933 | 2879 |
| 26371 | 7590 | 11/13/2007 | | |
| FOLEY & LARDNER LLP 777 EAST WISCONSIN AVENUE MILWAUKEE, WI 53202-5306 | | | EXAMINER MAI, TIEN HUNG | |
| | | | ART UNIT 2836 | PAPER NUMBER |
| | | | MAIL DATE 11/13/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|-------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/536,712 | Applicant(s) DELAPORTE, FRANCIS | |
| | Examiner Tien Mai | Art Unit 2836 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 09/21/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Application number 10/536712 for "Electromagnetic relay control" filed on 12/14/2005 has been examined.

Specification

Specification is written in a form which is hard to understand. It seems to be a literal translation from foreign language without an appropriate editing. Substitute specification is required. No new matter should be added.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

- (I) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

In re claims 1, 2, the phrase "the control unit is modulated" is objected to. "The control unit is modulated" which is misdescriptive since according to drawings and specification a part of the control unit (i.e. element 122 in fig. 1) generates a pulse-width modulation to control a transistor. Therefore, the control unit cannot be modulated by some other elements. For purpose of examination, the Examiner interprets the above limitation as "control unit generates a pulse-width modulation signal".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Shirato (US 6,518,764 "Shirato").

In re claims 1, 2, 5 and 7, Shirato discloses relay driving apparatus; the apparatus (fig. 6) comprises: a power supply adapting module for adapting a power supply of a relay. The power supply adapting module is interpreted as a PWM

controller which according to Shirato is pulse duration generator according to a value of voltage supply (col. 13, lines 25-43). A control unit (31) configured to control an electromagnetic relay (SW, RL1), the control unit generates a the pulse-width modulation (PWM) signal according to a voltage supply; at least one contact (15, 16), controlled by the control unit, the control unit is configured to control the at least one contact according to the voltage supply (col. 11, lines 21-40); the control unit is configured to provide a contacting voltage to the relay, the contacting voltage ("movable time" in fig. 7A) is sufficient to close the at least one contact; the control unit is configured to provide according to a voltage supply, a maintaining voltage ("A/B" slots in fig. 7A) sufficient to maintain closure of the at least one contact (fig. 7A) and the control unit (31) is configured to control the power supply adapting module. An oscillator generating pulses is inherent in Shirato's control unit since Shirato's control unit generates a PWM signal to control a transistor (Q5), the oscillator generated pulses (PWM signal) provides the contacting voltage and the maintaining voltage. The control unit generates the contacting voltage such that the duration of the contacting voltage is long enough to move armature of the relay and stay in contact stage and also provides the maintaining voltage such that on/off the durations of the maintaining voltage are long enough to keep armature in contact (on state) (col. 11, lines 33-46).

In re claim 3, Shirato discloses that the control unit comprises an equivalent means to control the duration of operation of the power supply adapting module during closure of the contact (col. 11, lines 21-32) ("movable time" duration).

In re claims 4, 8 and 9, Shirato discloses that the control unit comprises a module for detecting micro power cuts (col. 13, lines 25-43). Shirato discloses that the control unit monitors the output voltage of the transformer 1, and if it is detected that that output voltage of the transformer drops, the control unit supplies the base of the transistor (Q5) with the pulse signal in which the logical level is set to "Hi" for the time period corresponding to the movable time. Therefore, the movable iron piece 15 can be avoided from being separated from the relay coil due to the voltage drop of the commercial power source.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirato in view of Glidden et al. (US 6,493,204 "Glidden").

In re claim 6, Shirato discloses the limitations as discussed above. Shirato does not disclose a memory configured to store characteristics of the relay. Glidden discloses PWM control of a solenoid wherein processor includes a memory to store instructions (col. 1, lines 38-54). Using computer control is well known in the art. Computer software improves functionality and enables the system to perform multiple tasks. It would have been obvious to one of ordinary skill in the art at the time of the

invention was made to modify Shirato's control unit and add a memory, such as taught by Glidden, in order to improve functionality and perform multiple tasks.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tien Mai whose telephone number is 571-270-1277. The examiner can normally be reached on M-Th: 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TM

 11/7/07
MICHAEL SHERRY
SUPERVISORY PATENT EXAMINER